

# Agenda

## Advancing economics in business

### Competing with 'free'? The damages of music piracy

There is considerable debate about the economic implications of online music piracy, and controversial arguments have been put forward on both sides (by claimants such as record labels, and defendants such as hosts of pirate sites). What are the mechanisms through which piracy affects different music industry stakeholders, and how can one identify the counterfactual—ie, the stakeholders' performance in the absence of online copyright infringements?

Since the development of file-sharing 'peer-to-peer' software for music and audiovisual content—a major driver of which was the introduction of Napster in the late 1990s—there have been several court cases between the recorded music industry and some file-sharing services concerning the illegal distribution of copyrighted materials.

As an example, in a 2010 court case against LimeWire, a major file-sharing company, the Recording Industry Association of America (RIAA) claimed that the illegal sharing of recordings on the LimeWire network had led to a damage value of between \$40 billion and \$75 trillion—a range criticised by the Manhattan Federal Judge. The upper estimate was derived by simply multiplying the maximum statutory damage award of \$150,000 by the number of infringements (ie, the number of times illegal recordings were downloaded).<sup>1</sup> To put these figures into perspective: the International Monetary Fund estimated that the world gross domestic product in 2010 equated to around \$63 trillion,<sup>2</sup> and the International Federation of the Phonographic Industry (IFPI) reported the global recorded music sales in 2010 to be \$17 billion.<sup>3</sup>

Somewhat controversial arguments have also been put forward on the other side of the debate. For example, it has been argued that the people who share files and those who consume music legally are one and the same group. On this basis some have claimed that record labels suing file-sharers are effectively 'trying to sell soap by throwing dirt on [their] customers'.<sup>4</sup> According to proponents of file-sharing, making the content available online for no charge offers consumers the option to try music before purchasing, and hence serves as a platform for 'advertising'.

The two opposing views seem extreme, and are a testament to the controversy around developing a robust framework to derive credible estimates of the effects of piracy, which would form the basis for damages claims. Yet online piracy affects several parties along the value chain: in a static sense, there may be economic harm from 'lost sales' for record labels, retailers (both physical and online) and, indeed, principal rights holders (eg, songwriters). Furthermore, in a dynamic sense, the wide exposure and easy accessibility of websites sharing illegal content might prevent legal online offers from entering the market, which are in effect competing with free offerings.

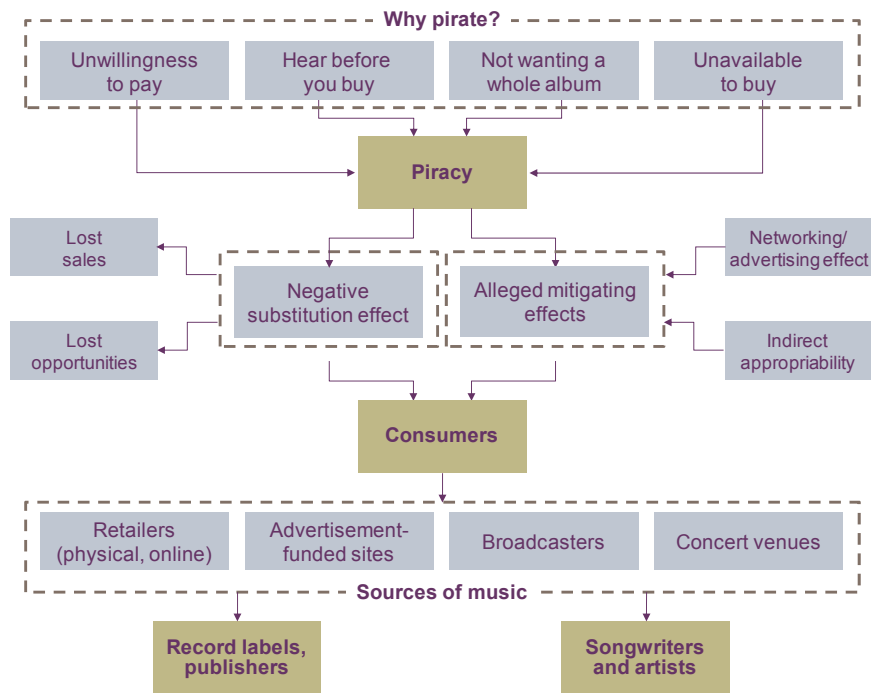
While there have been some settlements between the recording industry and file-sharing companies (eg, LimeWire), file-sharing technologies have continued to evolve (for example, the emergence of BitTorrent technology), and new disputes including damages claims are likely to arise.<sup>5</sup>

This article sheds some light on whether and how the economic damages from music piracy could be estimated. Are there robust methods to identify the counterfactual—ie, the performance of various stakeholders of the music industry in the absence of online copyright infringements?

#### Drivers and effects of piracy

Central to the damages assessment is an understanding of what drives piracy and the extent to which consumers engaging in illegal downloading would have purchased a legal copy in the absence of piracy websites. From an economic perspective, there is harm to copyright owners and distributors if a copy

Figure 1 Stylised illustration of reasons for, and effects of, piracy



Source: Oxera.

replaces a sale that would otherwise have been made. To identify the extent to which piracy has replaced legal sales, it is helpful to understand both the drivers of online music piracy and how piracy affects various stakeholders along the value chain. This is illustrated in Figure 1 above.

The figure shows four main economic reasons why people might decide to pirate instead of purchasing a legal, licensed copy of the music.

- **Unwillingness to pay**—consumers who chose not to purchase a particular music product because the market price was too high may, nevertheless, choose to obtain it illegally. It is noted that the market price of music might have been different, had piracy not distorted the legal music distribution market.
- **Hear before you buy**—since music is an ‘experience’ good, it has to be ‘experienced’ before consumers can assess its true value to themselves. It has been argued that people may want to try out the music before purchasing, although it is noted that online music stores generally provide this option anyway.
- **Not wanting a whole album**—consumers might not be willing to buy a whole album but may still want to purchase certain songs—this is what economists call an indivisibility problem. It may be of minor relevance in an age when individual songs can be downloaded or streamed through online retailers (such as iTunes

and Spotify), but may have been more prevalent when there were limited legal alternatives available.

- **Unavailable to buy**—certain music may simply not be legally available online. While this problem has been somewhat mitigated by the increasing emergence of online retailers, not all music—even mainstream—is available legally online. (For example, it was only in 2010 that The Beatles albums became available online.)

The above factors driving consumers’ decision-making feed into the mechanisms through which piracy may affect stakeholders along the music industry value chain.

Consumers’ decisions to engage in illegal file-sharing have a direct negative impact on the revenues from sales of legal content, as follows.

- **Lost sales**—if pirated music is similar in quality to legally sold music then the former can act as a ‘substitute’ for the latter. When legal music is replaced by pirated music, it represents a loss in sales for the distributors, record labels and other rights holders. The ratio by which consumers substitute unlicensed music with licensed music is called the ‘substitution rate’. This ratio might not be one-to-one, since people are more likely to over-consume when goods are free. When the ratio is high, it implies that piracy has a greater impact on the sales of music than when it is low.

- **Lost opportunities**—not only can pirated music replace legitimate sales, it could also have an adverse impact on the industry over time. To the extent that pirated music is ‘free’, legitimate businesses have to compete with a free good. Consequently, this may force some potential entrants in the industry to forgo the opportunity to acquire a critical mass of customers, since both the price they could charge and the demand for their product would have been limited by the existence of piracy.

As noted above, it has been suggested that, by downloading pirated copies first, consumers can discover whether they like a particular artist, album or song, which would then enable them to make better judgements when purchasing music. This argument needs to be assessed against the time when the infringement took place—while perhaps this argument may have had some relevance in the early 2000s, for some time now there have been legal (for example, advertising-funded) avenues for consumers to test music before buying. Other alleged balancing effects include the following.

- **Networking effect**—insofar as music piracy leads to greater consumption of music, the subsequent networking effect may lead to some individuals purchasing more music through recommendations. This effect balances sales losses only if the network effect does indeed result in legal purchases, rather than in an expansion of illegal downloading or streaming.
- **Indirect appropriability**—having the ability to copy may increase people’s willingness to pay, and hence a certain amount of copying may be included in the price of the original sale. This argument, known in economics as ‘indirect appropriability’, is likely to be more relevant in the context of narrowly conceived, usually legal, private copying (eg, ‘format-shifting’ a CD onto a music library on one’s PC for private use) than in that of illegal file-sharing, whereby copies may become competitors to the original product.<sup>6</sup>

Finally, these effects affect the stakeholders (eg, artists and record labels) through a variety of ways in which consumers can purchase and ‘experience’ music. These include through physical and online retailers, by indirectly consuming music when listening to the radio or watching films, via online services such as stream-on-demand, and by attending concerts (as discussed below).

## Assessing the damage: how to identify the counterfactual?

Record sales plummeted after the late 1990s, coinciding with the rise of Napster and other

peer-to-peer software sites and companies. The numerous lawsuits and claims for damages in this area stem from the notion that the substantial fall in sales resulted from piracy. A further argument is that there may have been other factors contributing to the fall in record sales at the same time, such as macroeconomic fluctuations, and technological progress influencing people’s listening habits.

Economics tools can be employed to control for these factors, and to derive estimates of the extent of harm attributable to piracy. To this end, academic literature on music piracy has made extensive use of econometrics to establish causal relationships between illegal downloading of music and the number of sales. These studies have assessed the relative strength of each of the effects described above. The general finding seems to be that music piracy has indeed had a considerable negative impact on record sales, although there are some differences in the extent to which the decline in sales is attributed to piracy as opposed to other factors driving music sales. For example, Liebowitz (2005) concluded that, on the basis of the evidence available, file-sharing could explain most or all of the decline in record sales.<sup>7</sup> Other researchers are perhaps more conservative, albeit still pointing to substantial damages values in absolute terms. Using panel cross-country data for 1997–2002, Zentner (2005), for example, found that online piracy could have resulted in a reduction of up to 24% in legal music sales,<sup>8</sup> a finding broadly in line with a more recent survey by Oberholzer-Gee and Strumpf (2010), which provides an overview of various further empirical studies and concludes that a ‘typical estimate is a displacement rate of about 20%’.<sup>9</sup>

Central to the assessment of the damage caused to the music industry by music piracy is the identification of the counterfactual.<sup>10</sup> The actual damage can then be calculated by comparing what has happened (the factual) against the counterfactual for each relevant party. The music value chain includes a myriad of stakeholders and is characterised by complex payment structures. The extent to which each of these may have been affected by piracy is likely to vary. The following are notable examples.

- **Record labels** generate revenues from sales of recorded music, and most of the revenue from record sales accrues to the labels. The labels are consequently affected to the extent that illegal copying replaces a sale that would otherwise have been made. It has been argued that the advertising effect referred to above may offset some of the overall damage. However, the question of whether the illegal sharing has indeed boosted sales, and to what extent, requires more rigorous analysis than simply identifying that file-sharing users are often the

same people as those using legal online services—an argument put forward by those objecting to any intervention against file-sharing.

- Similarly to labels, distributors including **online service providers** are affected as a result of the direct substitution effect between legal and illegal content. As discussed earlier, there are also losses associated with lost opportunities for online distributors of legal content. More specifically, insofar as consumers view legal and illegal content as substitutes, service providers paying for licences (and incurring other operating costs) are unable to penetrate the market at prices that ensure cost recovery.<sup>11</sup> While the economic price of pirated content is not zero—for example, because of moral concerns—it would appear plausible to assume that free offerings of the same content undermine the business case for licensed services. Furthermore, insofar as the distribution part of the value chain is distorted because of piracy, there is a (negative) knock-on effect on the revenues accruing to labels and other rights holders.
- **Songwriters, artists and publishers**, potentially represented by collecting societies, could be entitled to claim damages over and above the claims made by the record labels, to the extent that illegal content is broadcast in such a way that royalties would be due. In this respect, the assessment of the counterfactual should recognise that the technological development has reduced entry barriers to *legal* music distribution and could have done so to a greater extent, had the legal offerings not been faced with competition from ‘free’ illegal services. When competition downstream increases, this should, as a matter of economics, enhance the bargaining power of rights holders upstream, which in turn would be expected to have protected, not eroded, the compensation that they, as principal rights holders, can derive from music in the counterfactual—ie, in the absence of piracy.

It has been suggested that file-sharing might not have a negative impact on performance income, but may actually boost artists’ exposure and thereby their concert sales. To assess the robustness of this argument, one would need to establish the expected extent of digital distribution in the absence of piracy—ie, if not constrained by free illegal offerings, how far legal online business models could have provided a platform for similar exposure. In this respect, it is noted that business models funded by advertisements and subscription fees provide consumers with an option to access music at zero marginal cost.

More generally, establishing the counterfactual would involve assessing each entity separately and, to

complicate the matter further, it would then be necessary to determine any dependencies between the affected parties. In this respect, it is noted that piracy may have both ‘static’ and ‘dynamic’ effects on the stakeholders. Given that copyright—by giving the rights holder a monopolistic position with respect to material for a limited amount of time—was introduced to encourage creativity, it is possible that piracy, by undermining copyright, could lead to reduced incentives for the future creation of content. Similarly, lower revenue for record labels resulting from piracy could imply that fewer artists would be able to ‘make it big’ should piracy erode the resources of the record labels to advertise and promote recording artists.

Examples of potential approaches to estimating the counterfactual include the following.

- Statistical techniques can be employed to estimate the substitution rate of legitimate music for pirated music. For example, a before-and-after comparison could be used to test the hypothesis about substitutability in the consumption of legal and illegal content. ‘Difference-in-difference analysis’ could be most suitable for this type of approach. This would involve using a control group to compare legal (or illegal) downloads of albums that have become available online illegally (legally), before and after the event. The comparator would most likely be a similar album (by the same artist or in the same genre) that has been available for the whole of that period.

The analysis could exploit the observed changes in various factors relating to the volumes of piracy and record sales over time and across countries. The variation between countries could arise from differences in Internet adoption, evolution of Internet speeds, and differences in the severity of penalties for copyright infringement. (Countries have adopted different policies against piracy, and it has been noted that a rigorous approach to combating piracy has indeed benefited the online music market, for example in South Korea.)<sup>12</sup>

- An alternative could be to use a combination of theoretical models and empirical estimation to determine the counterfactual—ie, market structure-based approaches. In short, the aim of such approaches is to construct a theoretical model to estimate the market outcomes (profits) in a scenario where piracy does not exist. Although this is sometimes seen as more subjective than the econometric approach—in that it often requires more assumptions to be made—it could nevertheless be used as a complementary approach to the statistical method. The advantage of market structure-based approaches is that, once a model capturing the key interdependencies is constructed, it should be

possible to analyse how altering certain assumptions would affect the result, and to test and establish several counterfactual scenarios.

These estimates could be used together with actual sales data to calculate the damages figure.

## Clear methodologies for damages assessment to deter piracy?

There seems to be a need for a consistent and transparent framework to assess the impact of music piracy. This article has explored how methodologies adopted in commercial damages assessments may be applied to cases relating to music piracy, taking into account the 'direct' substitution effect resulting in sales losses, and constraining the emergence of alternative legal business models. By providing tools to identify the

appropriate counterfactual, economic analysis can help in deriving estimates of the damages of music piracy, while recognising the complexity of the music industry.

This article has not touched explicitly on the debate on how piracy could be dealt with in the first place. Where a market failure is identified, for example, there may be a case for public intervention, whether in the form of site blocking or warning and fining consumers engaging in illegal downloading directly, or through a 'statutory licence' (effectively a tax collected to compensate creators for the losses resulting from piracy). While these options belong to a separate debate, establishing rigorous and transparent principles for damages quantification could in itself serve as a deterrent against the illegal sharing of copyrighted content.

<sup>1</sup> Arista Records LLC v Lime Group LLC, No. 06 CV 5936 (KMW) (S.D.N.Y. May 11th, 2010).

<sup>2</sup> International Monetary Fund (2011), 'World Economic Outlook: Slowing Growth, Rising Risks', September, p. 178.

<sup>3</sup> International Federation of the Phonographic Industry (2010), 'Recording Industry in Numbers 2010'.

<sup>4</sup> Computerworld (2011), 'Former Google CIO Says Business Misses Key People Marks', July 25th.

<sup>5</sup> A summary of some recent cases is provided in Oberholzer-Gee, F. and Strumpf, K. (2010), 'File-Sharing and Copyright'.

<sup>6</sup> The economics of private copying is discussed in Oxera (2011), 'Is there a Case for Copyright Levies? An Economic Impact Analysis', April, available at [www.oxera.com](http://www.oxera.com); and Oxera (2011), 'Out of tune: is there an economic case for copyright levies?', *Agenda*, May.

<sup>7</sup> Liebowitz, S.J. (2004), 'File-Sharing: Creative Destruction or just Plain Destruction?', School of Management, University of Texas at Dallas, December.

<sup>8</sup> Zentner, A. (2005), 'File Sharing and International Sales of Copyrighted Music: An Empirical Analysis with a Panel of Countries', *Topics in Economic Analysis and Policy*, 5:1, pp. 1–15.

<sup>9</sup> Oberholzer-Gee and Strumpf (2010), op. cit., p. 16.

<sup>10</sup> Oxera and a multi-jurisdictional team of lawyers led by Dr Assimakis Komninos (2009), 'Quantifying Antitrust Damages: towards Non-binding Guidance for Courts', study prepared for the European Commission Directorate General for Competition, December.

<sup>11</sup> See, for example, Connolly, A. and Krueger, A.B. (2005), 'Rockonomics: The Economics of Popular Music', Princeton University Working Papers, March.

<sup>12</sup> *The Economist* (2010), 'A Rare Victory Against Piracy, Repelling the Attack – South Korea's Music Industry Succeeds in Fending off Pirates', April 22nd.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email [g\\_niels@oxera.com](mailto:g_niels@oxera.com)

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